UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,513	02/26/2007	**Philippe Mahe**	12418/7	2370

23280 7590 04/16/2009

Davidson, Davidson & Kappel, LLC
485 7th Avenue
14th Floor
New York, NY 10018

EXAMINER	
CHAWAN, SHEELA C	

ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
04/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,513	MAHE, PHILIPPE	
	Examiner	Art Unit	
	SHEELA C. CHAWAN	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Preliminary Amendment

2. Preliminary amendment filed on 5/24/09 has been entered.

Claims 1-32 are cancelled.

Claims 33- 64, are pending in the application.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 5/24/06, the information disclosure statement is being considered by the examiner.

Drawings

4. The Examiner has approved drawings filed on 5/24/06.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-64 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. The Federal Circuit[1], relying upon Supreme Court

[1] *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

precedent[2], has indicated that a statutory "process" under 35 U.S.C. 101 must (1) be tied to a particular machine or apparatus, or (2) transform a particular article to a different state or thing. This is referred to as the "machine or transformation test", whereby the recitation of a particular machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility (See *Benson*, 409 U.S. at 71-72), and the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity (See *Flook*, 437 U.S. at 590"). While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform an article nor positively tie to a particular machine that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 33- 37, 45 – 51, 54- 58, 60 and 61, are rejected under 35 U.S.C. 102(b) as being anticipated by Hartley, deceased (US. 5,388,129).

As to claim 33, Hartley discloses a method for non-destructive testing of an element for a nuclear reactor, comprising:

---

[2] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

acquiring a radiographic digital image of at least one area in the element (note, a radiographic image of a welded joints is obtained, column 12, lines 28- 29, the image on the film may be further processed to analyze the data);

creating a reference image through digital processing of the radiographic image obtained (note, the image from a defect free weld could be used as a reference image, column 12, lines 30-33); and

comparing the radiographic digital image obtained, one of processed and unprocessed, with the reference image to detect a presence of defects (note, anomaly is detected for the image from the radiographic image inspection, column 12, line 34).

As to claim 34, Hartley discloses the method according to claim 33, wherein the element is part of a nuclear fuel assembly (note, the welds to be inspected are from the nuclear fuel rod assemblies, column 5, lines 54- 57)

As to claim 35, Hartley discloses the method according to claim 34, wherein the element is a nuclear fuel rod extending along a longitudinal axis and comprising a sheath sealed by top and bottom plugs and containing a nuclear fuel (note, the welds to be inspected are from the nuclear fuel rod assemblies, column 5, lines 54- 57) .

As to claim 36, Hartley discloses the method according to claim 35, wherein the area comprises a weld bead between one of the plugs and the sheath (note, the weld seal is between the end plug and the walls of the tube, column 5, lines 61- 62).

As to claim 37, Hartley discloses the method according to claim 35, wherein the area comprises a spot weld sealing off a channel passing through the plug (note, the weld seal is between the end plug and the walls of the tube, column 5, lines 61- 62).

As to claims 45 - 50, Hartley discloses the method according to claim 33, wherein the step of comparing the radiographic digital image obtained, one of processed and unprocessed, with the reference image to detect a presence of defects comprises a substep of calculating a difference between the acquired image that is one of processed and unprocessed, and the reference image and of dividing the difference by one of the radiographic image obtained, that is one of processed and unprocessed, and the reference image (note, defects are identifying by comparing normal weld and a defect in the welded area by inspection . Also, see column 12, lines 42- 48) where the application can be useful by needed modifications to examine the radiographs, such as digital image processing).

Regarding claim 51, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 45.

As to claim 54, Hartley discloses the method according to claim 51, wherein comparing the radiographic digital image obtained, one of processed and unprocessed, with the reference image to detect a presence of defects comprises a substep of subtracting the reference image from the image obtained (note, the image with defects are compared with the defect free image, column 12, lines 30- 36).

Regarding claim 55, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 54.

Regarding claim 56, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 54.

As to claim 57, Hartley discloses the method according to claim 56, wherein one of the characteristics is a position of the defect detected in the image (note, the location of the defect is detected by comparison with a defect free zone of the weld).

Regarding claim 58, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 57.

As to claim 60, Hartley discloses the method according to claim 56, wherein the method is performed for more than one viewing angles(note, the viewing angles could be varied by moving the object held in the holding device, the collimator of radiation beam etc., column 11, lines 31-38).

As to claim 61, Hartley discloses the method according to claim 60, further comprising: reconstructing defects detected in the images corresponding to the more than one viewing angles (note, the use of radiographs of various viewing angles can be used for locations of defects (reconstructing the image with defects).

Allowable Subject Matter

7. Claims 38 – 44, 52- 53, 59, 62- 64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the prior art on record teaches or fairly suggests, the method according to wherein the step of creating a reference image through digital processing of the radiographic image obtained as required by claim 38.

Claims 39- 44 depend from the objected claim 38 and therefore they are objected for the same reasons.

Claim 52, the method according to claim 51, further comprising: smoothing the image acquired by the convolver prior to the substep of projecting the image along the longitudinal axis and reconstructing the image from projection along the axis.

Claim 53, method according to claim 52, wherein the convolver is a square of t adjacent pixels, wherein t is a whole number.

Claim 59, the method according to claim 51 further comprising: determining a minimal axial thickness of the spot weld.

As to claim 62, Hartley discloses the method according to claim 61, wherein the step of reconstructing defects detected in the images corresponding to the more than one viewing angles comprises a first substep of determining positions which a defect detected in a first image corresponding to a first viewing angle occupies in a second image corresponding to a second viewing angle, a second substep of comparing positions so determined with the positions of the defect actually detected in the second image to determine whether the defect has been detected in the second image, and upon detection of the defect in the second image, performing a third substep of calculating a dimension of the defect from representative characteristics of the dimensions of the defect determined in the first and second images.

Claim 63, the method according to claim 58, further comprising: summing representative characteristics of the dimension determined for more than one viewing

angles and comparing the sum with a threshold value in order to obtain a decision on whether the element conforms with predetermined manufacturing criteria.

Claim 64, the method according to claim 59, further comprising: calculating a mean of a minimum thickness determined from several viewing angles and comparing this thickness with a threshold value to make a decision on whether the element conforms with predetermined manufacturing criteria.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Friday 8.30 am - 5.00 pm and every Wednesday works from home. If attempts to reach the examiner by

telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sheela C Chawan/

4/10/09

Primary Examiner, Art Unit 2624